

Name: _____
PC: Transformations

Date: _____

Given each original function, *describe* each transformation in terms of the original function.

1. $y = x^2$

- (a) $y = x^2 - 2$
- (b) $y = (x - 2)^2$
- (c) $y = x^2 + 2$
- (d) $y = (x + 2)^2$
- (e) $y = (-x)^2$
- (f) $y = -x^2$
- (g) $y = |x^2 - 2|$
- (h) $y = -(x + 1)^2$
- (i) $y = (x - 1)^2 + 3$
- (j) $y = (x + 3)^2 - 1$
- (k) $y = 2 - (x - 4)^2$

2. $y = |x|$

- (a) $y = |x| - 2$
- (b) $y = |x - 2|$
- (c) $y = |x| + 2$
- (d) $y = |x + 2|$
- (e) $y = -|x|$
- (f) $y = -|x + 1|$
- (g) $y = -|x| + 1$
- (h) $y = |x + 3| - 2$
- (i) $y = -|x| - 2$
- (j) $y = -|x - 1| + 3$

3. $y = \sqrt{x}$

- (a) $y = \sqrt{x - 1}$
- (b) $y = \sqrt{x} + 2$
- (c) $y = \sqrt{x + 2}$
- (d) $y = -\sqrt{x}$
- (e) $y = -\sqrt{x + 1}$
- (f) $y = \sqrt{x} - 3$
- (g) $y = -\sqrt{x} + 2$
- (h) $y = -\sqrt{x - 3} + 1$
- (i) $y = -4 - \sqrt{x}$
- (j) $y = \sqrt{x - 1} + 2$

4. $y = x^3$

- (a) $y = (x - 1)^3$
- (b) $y = x^3 - 4$
- (c) $y = -x^3$
- (d) $y = -(x + 2)^3$
- (e) $y = (-x)^3$
- (f) $y = 2 + x^3$
- (g) $y = -4 - x^3$